



**23<sup>rd</sup> CONGRESS OF THE INTERNATIONAL ASSOCIATION FOR  
HYDRO-ENVIRONMENT ENGINEERING AND RESEARCH  
ASIA AND PACIFIC DIVISION**



**TECHNICAL PROGRAMME**

**DAY 1**

**Wednesday 14<sup>th</sup> December 2022**

<b>07:30-08:45</b>	<b>Registration</b>	<b>Venue: IC&amp;SR Building, IIT MADRAS</b>
<b>08:45-09:45</b>	<b>INAUGURATION</b>	<b>AUDITORIUM</b>

**Plenary Session 1 (10:00 - 10:50)**

<b>Plenary Session 1 Chair: Prof. Sundar V.</b>		<b>Venue: AUDITORIUM 14 Dec. 2022 10:00-10:50</b>
<b>10:00-10:10</b>	About the IAHR Book: History of Water, <b>Dr Hyoseop Woo</b>	
<b>10:10-10:20</b>	National Technological Centre for Ports, Waterways and Coasts, <b>Prof. K. Murali</b>	
<b>10:20:-10:50</b>	<b>Keynote 1</b> Hybrid Defence System for Inundating Tsunami Current or Overbank Flow from a River - <b>Prof. Norio Tanaka, Saitama University, Japan</b>	

**TEA BREAK (10:50 – 11:20)**

**Parallel Sessions 1 to 4 (11:20 - 12:50)**

<b>Parallel Session 1: River Hydraulics</b>			<b>Venue: AUDITORIUM</b>
<b>Chair:</b> Prof. Hao-Che Ho; National Taiwan University			<b>14 Dec. 2022 11:20-12:50</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>	
<b>11:20</b>	<b>ID078</b>	Maintenance of the Fairway at River Confluence Using Spur Dike <b>V Raam Balaji</b> , Malasani Gopichand, K Murali and Venu Chandra	
<b>11:35</b>	<b>ID081</b>	Prediction of Scour Depth Around Bridge Piers Using Artificial Neural Networks <b>Siva Krishna Reddy</b> and Venu Chandra	
<b>11:50</b>	<b>ID140</b>	Modelling Morphological Processes in The Vicinity of River Mouth Due to Partial Closure of The River Mouth Avula Arun Kumar, <b>Mutukuru Gangireddy Muni Reddy</b> , P.V.L Narasingarao	
<b>12:05</b>	<b>ID047</b>	Total Load Transport model for Sand Bed Rivers <b>Urvashi Malani</b> , Sahita I. Waikhom and Sanjay m. Yadav	

<b>Parallel Session 2: Computational Hydraulics</b>			<b>Venue: HALL 1</b>
<b>Chair:</b> Prof. Soumendra Nath Kuiry, IIT Madras			<b>14 Dec. 2022 11:20-12:50</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>	
<b>11:20</b>	<b>ID082</b>	Numerical Simulation of Hydrodynamics and Morpho dynamics in Thane Creek, India <b>Mahadevan Aparna</b> , Nandhakumar Saichenthur and Kantharaj Murali	
<b>11:35</b>	<b>ID110</b>	Comparison of Physical and Numerical Analysis to Study Effect of Discharge and Water Depth on Spillway Downstream Water Quality <b>Sushma Vyas</b> and Y. N. Srivastava	
<b>11:50</b>	<b>ID065</b>	Simulation of Bore Using Conservative Shallow Water Equations and ENO and WENO Schemes <b>Srimathy K</b> and K Murali	
<b>12:05</b>	<b>ID096</b>	A Mesh-Free Non-Newtonian Approach for Modelling of Embankment Failure Naveed U,I Hassan Bhat, <b>Gourabananda Pahar</b> and Anirban Dhar	



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12:20	ID113	Numerical Investigations into Wave Attenuation Characteristics of Vegetation Belt in Terms of Vortex Shedding Due to Different Arrangement Configuration <b>N Hari Ram</b> , Shaswat Saincher, V Sriram
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<b>Parallel Session 3: Climate Change</b>		<b>Venue: HALL 2</b>
<b>Chair: Prof. Balaji Narasimhan, IIT Madras</b>		<b>14 Dec. 2022 11:20-12:50</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
11:20	ID157	Anticipated Effects of Climate Change in New Zealand <b>Guinevere Nalder</b>
11:35	ID075	Climate Change and Crop Yield: Predictions based on Machine Learning <b>Arunya KG</b> , Krishnaveni M
11:50	ID129	Do CMIP6 GCMs outperform CORDEX RCMs in simulating near-surface wind speed climate over the Indian ocean? <b>Naresh Kumar Goud Lakku</b> , Manasa Ranjan Behera
12:05	ID141	Climate adaptation along the German coast of the Baltic Sea <b>Dirk Fleischer</b> , Arne Arns, Jürgen Stamm.
12:20	ID060	Long-Term Impacts of Climate Change on Reinforced Concrete Berthing Structures. <b>Santosh Kumar B</b> , S A Sannasiraj, K Murali
12:35	ID067	Combined Storm Surge and River Flow Simulation for The Hooghly Estuary, East Coast of India. B.Sridharan, Vikram Pratap Singh, Dhruvajyoti Sen, Soumendranath Kuiry

<b>Parallel Session 4: Maritime Hydraulics</b>		<b>Venue: HALL 3</b>
<b>Chair: Dr. T. Nasar, NITK, Surathkal</b>		<b>14 Dec. 2022 11:20-12:50</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
11:20	ID091	Hydrodynamic Investigation on Wind Effects on Wave Overtopping at Vertical Seawalls <b>Swapnadip De Chowdhury</b> , Jian Guo Zhou, Tim Pullen
11:35	ID061	Application of IITM-RANS3D to Wave-Breaking and Wave-Structure Interaction Problems <b>Shaswat Saincher</b> , V Sriram
11:50	ID155	Numerical Investigation of Effect of Twin Island Structure and Its Impact on Burble <b>Ankit Nehra</b> , Vijayakumar R
12:05	ID093	Numerical Investigation of Resonant Water Motion Between a Rectangular Barge and a Vertical Wall Using the IMPLG_R Method <b>Vineesh P</b> , V Sriram

**LUNCH (12:50-13:50)**



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**Parallel Sessions 5 to 8 (13:50-15:20)**

<b>Parallel Session 5: Surface Water Resources</b>		<b>Venue: AUDITORIUM</b>
<b>Chair:</b> Prof. Saif Said, Aligarh Muslim University		<b>14 Dec. 2022 13:50-15:20</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
13:50	ID019	Dibhang River Training Studies at Arunachal Pradesh, India P K Suresh, <b>Sundaravadivelu Ranganathan</b> and Nilanjan Saha
14:05	ID015	Geospatial Assessment of Pallikaranai Marsh in Tamil Nadu (India) - A step towards urban flood resilience <b>Reshma R</b> , Soumendra Nath Kuiry
14:20	ID135	Modelling on Monthly Streamflow Based on Two Different DEM Resolutions of Basins <b>I Gede Tunas</b> , Sukandi Samatan
14:35	ID143	Effect Of Changes in Environmental Flow Caused by Natural and Anthropogenic Changes on The Habitat of River Ecosystems. <b>Joo-Heon Lee</b> , Seo-Yeon Park, Young-Jun Kim, Jong-Moon Na

<b>Parallel Session 6: Environmental Management</b>		<b>Venue: HALL 1</b>
<b>Chair:</b> Prof. Ligy Philip, IIT Madras		<b>14 Dec. 2022 13:50-15:20</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
13:50	ID055	Livelier River Quality Naturally <b>Eny Suria Binti A Jalil</b> , Nik Kun Bin Nik Man and Shanker Kumar Sinnakaudan
14:05	ID026	Eliminating Fixation of Alternate Bars by Using Impermeable Groynes Ryotaro Endo, Takao Tamura and Yasunori Muto
14:20	ID014	Dissolution And Precipitation Effect on Salinity Ingestion During Flowthrough Biotic and Abiotic Porous Media Bihung Narzary, Soumen Maji and Medalson Ronghang
14:35	ID149	Performance Evaluation of surface wind speed estimates of observations of the West coast of India with Era-interim, IMDAA, NCEP-FNL, and Scatsat-1 <b>Pabali Mukherjee</b>

<b>Parallel Session 7: Maritime Hydraulics</b>		<b>Venue: HALL 2</b>
<b>Chair:</b> Prof. R. Balaji, IIT Bombay		<b>14 Dec. 2022 13:50-15:20</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
13:50	ID006	Numerical Modelling of Wave Impact on Floating Bodies <b>Arya Thomas</b> , V K Srineash and Manasa Ranjan Behera
14:05	ID033	Design of Breakwater with Permissible Overtopping Discharge Through Wave Flume Studies for The Development of Port <b>A V Mahalingaiah</b> , Uday B. Patil and Ganesh N. S.
14:20	ID147	Wave Force on a Partially Immersed Caisson Supported on Piles <b>Vasanthakumar S</b> , Sannasiraj S.A, Sundar V, Karthik Ramanarayan S
14:35	ID064	Numerical Analysis of Modular Floating Solar Farms Under Wave Motion. Dharma Sree K K, Adrian Wing-Keung Law, Dawn Sok Cheng Pang, Tan Sze Tiong, Wang Chien Looi, Jernice Kew Huling, Seow Wei Kiong, Vincent Lim Han
14:50	ID160	Hexagon Tetrapod for Seawall at Mukkachery <b>Chandramohan P V</b>



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<b>Parallel Session 8: Surface and Ground Water Resources</b>		<b>Venue: HALL 3</b>
<b>Chair:</b> Prof. Suresh Kumar G., IIT Madras		<b>14 Dec. 2022 13:50-15:20</b>
Time	Paper ID	Paper Title and Author(s)
13:50	ID156	Performance Of Acoustic Doppler VECTRINO Profiler in Measurement of Velocity Profile in Mobile Bed Channel. <b>Gurugubelli Yatirajulu, Laxman Rathod, P V Timbadiya, Bandita Barman</b>
14:05	ID052	Experimental Study of Turbulent Flow Characteristics Around a Circular Bridge Pier <b>Siva Krishna Reddy, Venu Chandra</b>
14:20	ID048	Understanding the Driftage Behaviour of Multiple Debris Due to Tsunami Induced Flows on a Sloped Bed <b>N. R. Josiah, S. Araki, D. P. C. Laknath</b>
14:35	ID133	Simulation-Optimization Based Inverse Groundwater Modelling to Estimate Aquifer Parameters <b>K. Swetha, T.I. Eldho, L. Guneshwor Singh, A. Vinod Kumar</b>
14:50	ID107	Estimation of Surface Soil Moisture of The Brahmaputra Basin in Bangladesh Using SAR Remote Sensing <b>Ahmed Hossain, Shampa</b>

**TEA BREAK (15:20 – 15:50)**

**Plenary Session 2 (15:50 – 16:50)**

<b>Plenary Session 2</b>		<b>Venue: AUDITORIUM</b>
<b>Chair:</b> Prof Radiant Triatmadja		<b>14 Dec. 2022 15:50-16:50</b>
15:50-16:20	<b>Keynote 2</b> Experiences and observations from the Flood Disaster 2021 in Germany, <b>Dr.-Ing. Holger Schüttrumpf, RWTH Aachen University, Germany</b>	
16:20-16:50	<b>Keynote 3</b> Ocean Waves as a Link Between Met Ocean Time Scales: Turbulence, Waves, Weather, Climate; and Between Environments: Deep Water, Coasts, Marginal Ice Zone, <b>Prof. Alexander V Babanin, University of Melbourne, Australia.</b>	

**Special Session 1 and Parallel 9 to 10 (16:50-18:20)**

<b>Special Session to Honour Prof. V. Sundar</b>		<b>Venue: AUDITORIUM</b>
Moderator: Prof. Sannasiraj S A & Prof. Sriram V		<b>14 Dec. 2022 16:50-18:20</b>
<b>Invited Lectures</b>		
Dr. Balaji Ramakrishnan, Professor, IIT – Bombay		
Mr. P. N. Ananth, Vice President and Head of Energy and Marine Department, COWI India (P) Ltd.		
Dr. P.V. Chandramohan, President: Technical, Navayuga Engg. Co. Ltd.		
Dr. R. Sundaravadivelu, Professor Emeritus, IIT- Madras		
Dr. K G S Sharma, General manager, RITES Ltd.		
Dr. L. Sheela Nair, National Centre for Earth Science Studies		
Mrs. R. Sukanya, Senior Engineer, National Technology Centre for Ports Waterways and Coasts		



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<b>Parallel Session 9: Statistical Methods</b>		<b>Venue: HALL 2</b>
<b>Chair:</b> Prof. Nilanjan Saha, IIT Madras		<b>14 Dec. 2022 16:50-18:20</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
16:50	ID150	Case Study Using Artificial Intelligence and Machine Learning Methods to Predict Unknown Water Level in North Korean Dams <b>Joo bum. Park</b> , Seung Hee. Lee, Sun Iin. Kim
17:05	ID130	Estimation of Probable Maximum Tropical Cyclone Parameters for Bay of Bengal and Arabian Sea. <b>Satish Kumar</b> , Manasa Ranjan Behera, Saikrishna Nadella, Vinod Kumar A
17:20	ID100	Application Of ANFIS and Linear Regressions into Prediction of Reservoir Outflow. <b>Biswajit Nayak</b> , Janhabi Meher, Minakshee Mahananda
17:35	ID145	A Data Driven Artificial Viscosity Method for Shock Capturing Rahul Saroj Gupta, Prabhakar Akurati, Ritwik Ghoshal, <b>Debeneil Nag Chowdhury</b>

<b>Parallel Session 10: Turbulence Modelling</b>		<b>Venue: HALL 3</b>
<b>Chair:</b> Dr. Soumendra Nath Kuiry, IIT Madras		<b>14 Dec. 2022 16:50-18:20</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
16:50	ID001	Numerical simulation of submerged hydraulic jump using a URANS model <b>Seongwook Choi</b> and Sung-Uk Choi
17:05	ID045	Turbulence anisotropy and length scales around a straight spur dike <b>Tapas Kumar Pradhan</b> and Venu Chandra
17:20	ID162	Numerical Modelling of Ship Waves and Induced Sediment Resuspension In The Hooghly River, India <b>Mainak Chakraborty</b> , V Sriram, K Murali
17:35	ID158	Experimental Study on Liquid Sloshing Dynamics in A Sway Excited Rectangular Tank Sahaj K.V, Shwetha Shri and <b>T. Nasar</b>

**ICE BREAKER (19:00 – 20:30)**



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**DAY 2**

**Thursday 15<sup>th</sup> December 2022**

**Parallel Sessions 11 to 14 (09:00-10:30)**

<b>Parallel Session 11: Surface Water</b>		<b>Venue: AUDITORIUM</b>
<b>Chair:</b> Dr. Vijaya Ravichandran, NIOT		<b>15 Dec. 2022 09:00-10:30</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
09:00	ID018	Estimation of Braided River Bathymetry in Poorly Gauged Rivers Using Optical Images for Estimation of River Erosion <b>Mohammad Muddassir Islam</b> , Israt Jahan Nejhum, Md Manjurul Hussain and Shampa
09:15	ID138	In-Stream and Floodplain Sand Mining Impacts in An Alluvial River – A Case Study of Thoubal River, Manipur, India Mukesh Kumar Yadav, Ngangbam Romeji and Chesabam SonaliI
09:30	ID041	Evaluation Of Predictive Skill of Short-Term Raw Ensemble Forecasts for Mapping of Extreme Floods <b>Nithila Devi. N</b> , Soumendra Nath Kuiry
09:45	ID097	On Applicability of Local Inertia Model for Integrated Surface-Subsurface Flow Systems. <b>Alok Kumar</b> , Gourabananda Pahar
10:00	ID098	Depth-Averaged Modelling of the Free Surface Flows Subjected to Sharp Obstructions <b>Naveed Ul Hassan Bhat</b> , Gourabananda Pahar
10:15	ID161	The Early-Warning System to Predict Sediment Flux in the Mountain Basin during Typhoon Events Hao-Che Ho.

<b>Parallel Session 12: Maritime Hydraulics Modelling</b>		<b>Venue: HALL 1</b>
<b>Chair:</b> Prof. Panneer Selvam, IIT Madras		<b>15 Dec. 2022 09:00-10:30</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
09:00	ID063	Simulation of Wave Climate and Wave Energy in South-Western Coast of Sri Lanka D. P. C. Laknath, <b>I G I K Kumara</b> , H.P.G.M. Caldera, K.K.P.P. Ranaweera
09:15	ID092	A Meshless Numerical Method for Solving the Two-Dimensional Shallow Water Equations <b>D Satyaprasad</b> , S. Sundar, Soumendra Nath Kuiry
09:30	ID086	Mesh Transformation Effects in Three-Dimensional Hydrodynamic Modelling of The Gulf of Kachchh <b>Thankachan Susmitha</b> , Kanakkassery Raju Sidharth, Nandhakumar Saichenthur, Kantharaj Murali
09:45	ID088	Analysis of trends in the significant wave height over the Northern Indian Ocean <b>Dhanya Mol P</b> , Agilan V., Anand K V.
10:00	ID123	Effect Of Bottom Friction and Wind Drag Coefficient on Tropical Cyclone Storm Surge Hindcast in The Bay of Bengal <b>V G Shashank</b> , V. Sriram, Holger Schüttrumpf, S. A. Sannasiraj
10:15	ID043	Experimental Investigation of Tsunami Bore Momentum Reduction Using Vegetation <b>Harish S</b> , B. Jochems, Jan Oetjen, Holger Schüttrumpf, V. Sriram, S.A. Sannasiraj



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<b>Parallel Session 13: Environmental Management</b>		<b>Venue: HALL 2</b>
<b>Chair: Prof. Indumathi Nambi, IIT Madras</b>		<b>15 Dec. 2022 09:00-10:30</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
09:00	ID108	A Study of Groundwater Contamination and Its Probable Protective Measures from Medical Waste in Kokrajhar, Assam, North East India Pwjwngsar Basumatary, Soumen Maji, Yachang Omo
09:15	ID016	The Study on The Hydraulic Control Concept of The Yodo River Basin That Utilizes a Part of The Reclaimed Land of The Ogura-Ike Pond as a Retarding Basin <b>Yuko Ishida</b> and Yoshiya Ogawa
09:30	ID004	Investigation on the Performance of Attached Growth Biological System for Instream Treatment of Municipal Wastewater <b>Mohammed Iqbal Thayyil</b> and Ligy Philip
09:45	ID114	Political Connectivity, Social Capital and Multidimensional Coastal Vulnerability Index in India <b>Benisha G</b> , Sabuj kumar Mandal, Unmesh Patnaik
10:00	ID163	Fluid Ecologies, Sovereignty and Colonialism: Princely Contestations for Riverine Islands in Colonial India S. Mahendranath, John Bosco Lourdusamy
10:15	ID142	The Environmental & Socioeconomic Impacts of Flood Events Perceived by the Local Communities in Chennai. Baria Yashvi, Braun Boris, Letmathe Peter, Pfaffenbach Carmella, Woiwode Christoph

<b>Parallel Session 14: Coastal Hydraulics</b>		<b>Venue: HALL 3</b>
<b>Chair: Dr. Swapnadip De Chaudhuri, IIT Khargapur</b>		<b>15 Dec. 2022 09:00-10:30</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
09:00	ID009	Founding Level and Fixity Depth of Pile in Layer Soil with Weathered Rock and Basalt Rock. <b>Sakthivel Sundaravadivelu</b> , Sundaravadivelu Ranganathan, Kavitha Perumalsamy, Sowmiya S
09:15	ID008	Scouring of Sandy Bed Around Curved Seawalls Due to Extreme Wave Events. <b>Daineymol Thomas</b> and K V Anand
09:30	ID164	Study on shoreline changes and coastal erosion along the Thiruvananthapuram coast of Kerala with particular reference to the Valiathura-Sankumugham sector L. Sheela Nair, Rafeeqe M. K. and Jayakumar
09:45	ID023	Stability Analysis of Breakwater In Andhra Pradesh Through Numerical Modelling <b>Sundaravadivelu Ranganathan</b> , Sakthivel Sundaravadivelu and Kavitha P

**TECHNICAL TOUR (10:30-19:00)**

**CULTURAL PROGRAMME (19:00-19:45)**

**BANQUET (19:45-21:45)**



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**DAY 3**

**Friday 16<sup>th</sup> December 2022**

**Parallel Sessions 15 to 18 (09:00-10:30)**

<b>Parallel Session 15: Water Quality</b>		<b>Venue: AUDITORIUM</b>
<b>Chair:</b> Dr. Soumen Maji, Central Inst. of Tech., Kokrajhar		<b>16 Dec. 2022 09:00-10:30</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
09:00	ID094	Seasonal And Spatial Variation of Water Quality Parameters of Mula Mutha River, Pune, India. <b>Jitesh Narottam Vyas</b> , R. B. Deogade, Supriya Nath and Dudekula Nikhil Kumar
09:15	ID011	Groundwater Quality Near the Nonai River in Udalguri District, Assam. <b>Medalson Ronghang</b> , Partha Jyoti Sarmah, Irfan Kamal, Soruj Das, Jintu Moni Kalita and Zico Zemin
09:30	ID125	Study of Groundwater Quality and Its Sustainability Using GIS Techniques in Kokrajhar, Assam, North East India. <b>Swdwmsri Brahma</b> and Yachang Omo
09:45	ID154	Risk Assessment and Fish Habitat with The Stage of River Improvement. <b>Yoshiaki Seki</b> , Kohji Tanaka

<b>Parallel Session 16: Maritime Hydraulics</b>		<b>Venue: HALL 1</b>
<b>Chair:</b> Prof. K. Murali, IIT Madras		<b>16 Dec. 2022 09:00-10:30</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
09:00	ID042	Influence of Cross Currents on Inland Vessel Movement - A Review <b>Malasani Gopichand</b> , Murali K And Venu Chandra
09:15	ID136	Dredging Practice in Indian Ports an Overview <b>Hradaya Prakash</b> , N G Gogate, L R Ranganath
09:30	ID151	Estimation of Maintenance Dredging Quantity Using Numerical Modelling Technique in Thane Creek Mandar Bharat Gavali, <b>Balaji Ramakrishnan</b>
09:45	ID115	Modelling the Effects of Cyclones on Sediment Transport and Morphodynamics in Bay of Bengal Region <b>Rohini S</b> , Sannasiraj S.A., Sundar V., Dhananjayan M.
10:00	ID159	Numerical Investigations on Different Shapes of Offshore Fish Cages Subjected to Regular Waves <b>Shaik Abdul Shareef</b> , Nasar Thuvanismail, Pawan Kumar, Eslavanth Sai Kiran Naik

<b>Parallel Session 17: Surface Water Resources</b>		<b>Venue: HALL 2</b>
<b>Chair:</b> TBC		<b>16 Dec. 2022 09:00-10:30</b>
<b>Time</b>	<b>Paper ID</b>	<b>Paper Title and Author(s)</b>
09:00	ID148	A Review of Various Modelling Techniques Used for Flood Prediction, Susceptibility Analysis and Mapping in Mountainous Regions. <b>Abhimanyu Singh Pathania</b> , Mahesh Patel, Jagriti Mishra
09:15	ID119	Disposal of Stormwater Flows Generated by Climate Change Induced Heavy Rainfall Events. <b>Induka Werellagama</b> , Gregory De Costa, Ajith Kularathna
09:30	ID022	Simplified Process Model Representation of Low Impact Development Techniques for Watershed Scale Analysis <b>Sreethu S</b> , Balaji Narasimhan and S. Murty Bhallamudi
09:45	ID066	River discharge control on tidal dynamics in Narmada estuary <b>P Vengadesan</b> , S A Sannasiraj, S Murty Bhallamudi





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<b>Parallel Session 18: Water Distribution &amp; Sensor Network</b>		<b>Venue: HALL 3</b>
<b>Chair:</b> Dr. Venu Chandra, IIT Madras		<b>16 Dec. 2022 09:00-10:30</b>
Time	Paper ID	Paper Title and Author(s)
09:00	ID030	A Study of Clean Water Supply After Earthquake at Lombok Utara Regency, Indonesia. Ari Ramadhan Hidayat, Djoko Legono, <b>Intan Supraba</b> and Radianta Triatmadja
09:15	ID035	Application Of Substitution Theorem for Reorganization of a Water Distribution Network. <b>Raman Balireddy</b> , Anjan Chakravorty, S. Murty Bhallamudi and Soumendranath Kuiry
09:30	ID036	A Quick Method to Determine Tank Capacity in the Pipe Network Due to Daily Fluctuation of Domestic Water Demand. <b>Radianta Triatmadja</b> , Djoko Legono and Intan Supraba
09:45	ID102	Comparing The Energy Consumption Routing Protocols and Cooperative Communication Technique in Underwater Acoustic Sensor Networks – A Review. A.Kannappan and R.M.Bommi

**TEA BREAK (10:30 – 11:00)**

**Plenary Session 3 (11:00 - 13:00)**

<b>Plenary Session 3</b>		<b>Venue: AUDITORIUM</b>
<b>Chair:</b> Prof. Mukund Babel, AIT Bangkok		<b>16 Dec. 2022 11:00-13:00</b>
<b>11:00-11:30</b>	<b>Keynote 4</b>	UAV-based Remote Sensing of Water Quality in Coastal Environment for Engineering Applications– <b>Prof. Adrian Wing-Keung Law, NTU, Singapore</b>
<b>11:30-12:00</b>	<b>Keynote 5</b>	Urban Floods in India: An Emerging Hydrologic Challenge, <b>Prof. Mujumdar P. P., IISc Bangalore, India</b>
<b>12:00-12:30</b>	<b>Keynote 6</b>	The need for and characterization of fully developed flow in open channels. <b>Prof. Ram Balachandar, University of Windsor, Canada</b>
<b>12:30-13:00</b>	<b>Keynote 7</b>	Applications of Systems Analysis Techniques to Resolve Inter-State Water Sharing Disputes, <b>Prof. Jain S.K., IIT Roorkee, India</b>

**LUNCH (13:00 – 13:50)**

**Special Session 2 and Parallel Sessions 19 to 20 (13:50-15:20)**

<b>Special Session 2: Water Security and Climate Adaptation</b>		<b>Venue: AUDITORIUM</b>
<b>Chair:</b> Dr. Yuko Ishida, Setsunan University		<b>16 Dec. 2022 13:50-15:20</b>
Time	Paper ID	Paper Title and Author(s)
13:50	-	<b>Invited Lecture:</b> <b>Prof. Mukand Singh Babel</b>
14:05	ID068	Assessment of Water Quality in Indravati Subbasin using ARCSWAT <b>Yuvaraja P</b> , Manjula R., Venkateswarlu Ch.
14:20	ID128	Tropical Cyclone Activity Under Climate Change Over North Indian Ocean <b>Raviraditya Singh</b> and Manasa Ranjan Behera



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14:35	ID083	Flood Risk Assessment in The Yamato River System Under Climate Change Using Large-Scale Ensemble Data. <b>Daiki Omori</b> , Kohji Tanaka and Akira Kurihara
14:50	ID126	Assessment Of Coastal Vulnerability Considering Future Extreme Events <b>Ashiq Ahmed M</b> , Nilanjan Saha, Sannasiraj S A.

<b>Parallel Session 19: Surface &amp; Ground Water Resources</b>		<b>Venue: HALL 2</b>
Chair: TBC		<b>16 Dec. 2022 13:50-15:20</b>
Time	Paper ID	Paper Title and Author(s)
13:50	ID058	Comparative Evaluation of Monthly Rainfall Estimates Using Gene Expression Programming and Multiple Linear Regression Azazkhan i. Pathan, and <b>Saif Said</b>
14:05	ID027	A Critical Review on Flow Over Fluvial Bed-Forms and Research Directions Mahesh Patel, Ajaz Ahmad mir and Bimlesh Kumar
14:20	ID070	By-Pass Tunnel- A lifeline for Run-Of-River Hydro Projects M. K. Verma, M Z Gamar, A P Meshram and DR Neena Isaac
14:35	ID152	Numerical Study on Flow Behaviours of a Tidal River Junction Lihan Hu, Jianjun Han, Pengcheng Xu, Xu Yang And Lingling Wang

<b>Parallel Session 20: Maritime Hydraulics</b>		<b>Venue: HALL 3</b>
Chair: TBC		<b>16 Dec. 2022 13:50-15:20</b>
Time	Paper ID	Paper Title and Author(s)
13:50	ID040	Estimation of Shoreline changes along Kozhikode coast using High-Resolution Remote Sensing <b>Saikrishnan K.</b> , K.V. Anand and Agilan V.
14:05	ID117	Efficiency Improvements from Rounded Oscillating water Column entrances and Implications for Coastal Protection Lachlan Hick, Danica Tothova, <b>Richard Manasseh</b> , S. A. Sannasiraj
14:20	ID104	Shoreline Oscillations Around a Pair of Breakwaters at Ponnai Fishery Harbour in Kerala <b>Kunhimammu Paravath</b> , Nasar T
14:35	ID112	Coastal Morphological Changes Due to The Nivar Cyclone on The East Coast of India <b>Gracy Margret Mary R</b> , Sannasiraj S A, Sundar V, Kumaran Raju D
14:50	ID111	An Empirical Model for Natural Beach Erosion Under Waves Ye Htet Oo, <b>Hong Zhang</b>
15:05	ID118	Digital Transformation for Managing Offshore Structures <b>S Karunanithi</b> , Praveen Bhat, Nitin Nehra, Amit Jain, Rachit Agarwal

**VALEDICTORY & CLOSING (15:20 – 16:20)**

**HIGH TEA (16:30 – 17:00)**